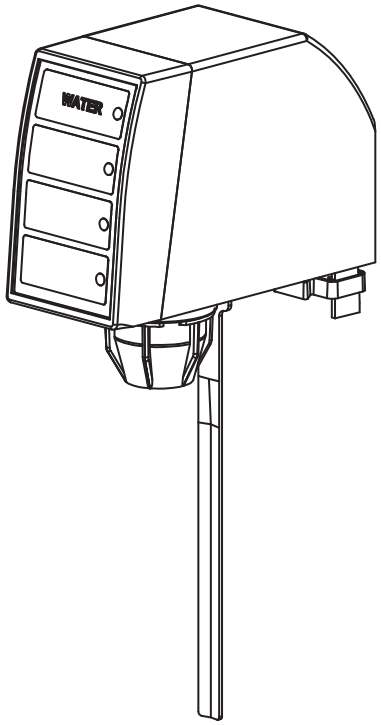
Servend




# VARIETY VALVES
# for Servend Beverage Dispensers

## Installation, Use & Care Manual

This manual is updated as new information and models are released.
Visit our website for the latest manual. www.manitowocfsg.com

***Leader in Ice & Beverage Dispensers***
Part Number 020004001 4/12

Manitowoc

## Safety Notices

As you work on Manitowoc equipment, be sure to pay close attention to the safety notices in this manual. Disregarding the notices may lead to serious injury and/or damage to the equipment.

Throughout this manual, you will see the following types of safety notices:

**⚠ Warning**

Text in a Warning box alerts you to a potential personal injury situation. Be sure to read the Warning statement before proceeding, and work carefully.

**⚠ Caution**

Text in a Caution box alerts you to a situation in which you could damage the equipment. Be sure to read the Caution statement before proceeding, and work carefully.

## Procedural Notices

As you work on Manitowoc equipment, be sure to read the procedural notices in this manual. These notices supply helpful information which may assist you as you work.

Throughout this manual, you will see the following types of procedural notices:

**Important**

Text in an Important box provides you with information that may help you perform a procedure more efficiently. Disregarding this information will not cause damage or injury, but it may slow you down as you work.

NOTE: Text set off as a Note provides you with simple, but useful, extra information about the procedure you are performing.

## Read These Before Proceeding:

**⚠ Caution**

Proper installation, care and maintenance are essential for maximum performance and trouble-free operation of your Manitowoc equipment. Read and understand this manual. It contains valuable care and maintenance information. If you encounter problems not covered by this manual, do not proceed, contact Manitowoc Foodservice Group. We will be happy to provide assistance.

**Important**

Routine adjustments and maintenance procedures outlined in this manual are not covered by the warranty.

**⚠ Warning**

**PERSONAL INJURY POTENTIAL**

Do not operate equipment that has been misused, abused, neglected, damaged, or altered/modified from that of original manufactured specifications.

**NOTE: SAVE THESE INSTRUCTIONS.**

We reserve the right to make product improvements at any time.
Specifications and design are subject to change without notice.

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# Section 1
# General Information

## Read This Manual

Manitowoc Beverage Equipment (MBE) developed this manual as a reference guide for the owner/operator and installer of this equipment. Please read this manual before installation or operation of the machine. A qualified service technician must perform installation and start-up of this equipment, consult **Section 5** within this manual for service assistance.

If you cannot correct the service problem, call your MBE Service Agent or Distributor. Always have your model and serial number available when you call.

Your Service Agent _____

Service Agent Telephone Number _____

Your Local MBE Distributor _____

Distributor Telephone Number _____

Model Number _____

Serial Number _____

Installation Date _____

## Unit Inspection

Thoroughly inspect the unit upon delivery. Immediately report any damage that occurred during transportation to the delivery carrier. Request a written inspection report from a claims inspector to document any necessary claim.

**⚠ Warning**

**PERSONAL INJURY POTENTIAL**

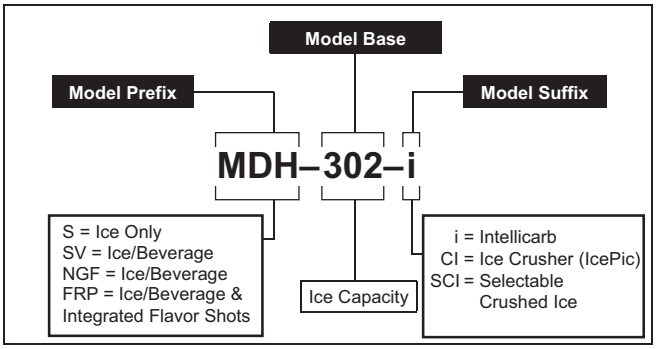
Do not operate equipment that has been misused, abused, neglected, damaged, or altered/modified from that of original manufactured specifications.

## Model Numbers

This manual covers the following models:

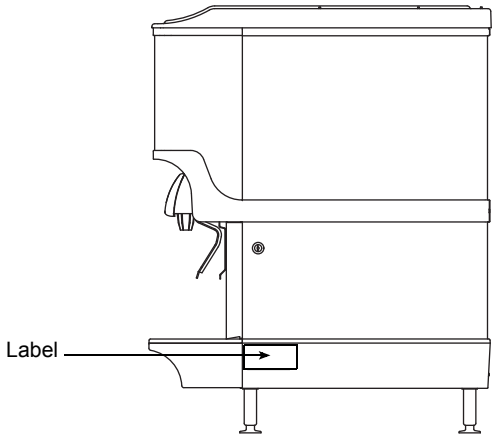
| Beverage/Ice Dispensers |
|---|
| IC-2323, SV-150, SV-175, SV-200, SV-250, MDH-302, CEV-30, CEV-40, CT-6, DI/DIL-2323 |
| **Variety Valves** |
| AUTOFILL VALVE - 27-3102, SANITARY LEVER VALVE - 27-3105, PUSH BUTTON VALVE - 27-3104, PORTION CONTROL VALVE - 27-3103 |

**HOW TO READ A MODEL NUMBER**




## Serial Number Location

This number is required when requesting information from your local distributor. The serial number is listed on the SERIAL NUMBER DECAL affixed to the dispenser.




**Serial Number Location**

## Warranty Information

Consult your local MBE Distributor for terms and conditions of your warranty. Your warranty specifically excludes all beverage valve brixing, general adjustments, cleaning, accessories and related servicing.

Your warranty card must be returned to MBE to activate the warranty on this equipment. If a warranty card is not returned, the warranty period can begin when the equipment leaves the MBE factory.

No equipment may be returned to MBE without a written Return Materials Authorization (RMA). Equipment returned without an RMA will be refused at MBE's dock and returned to the sender at the sender's expense.

Please contact your local MBE distributor for return procedures.

# Section 2
# Installation Instructions

## General

These instructions are provided to assist the qualified installer. Contact your Manitowoc Beverage Equipment Service Agent or call Manitowoc Beverage Equipment for information regarding start-up services.

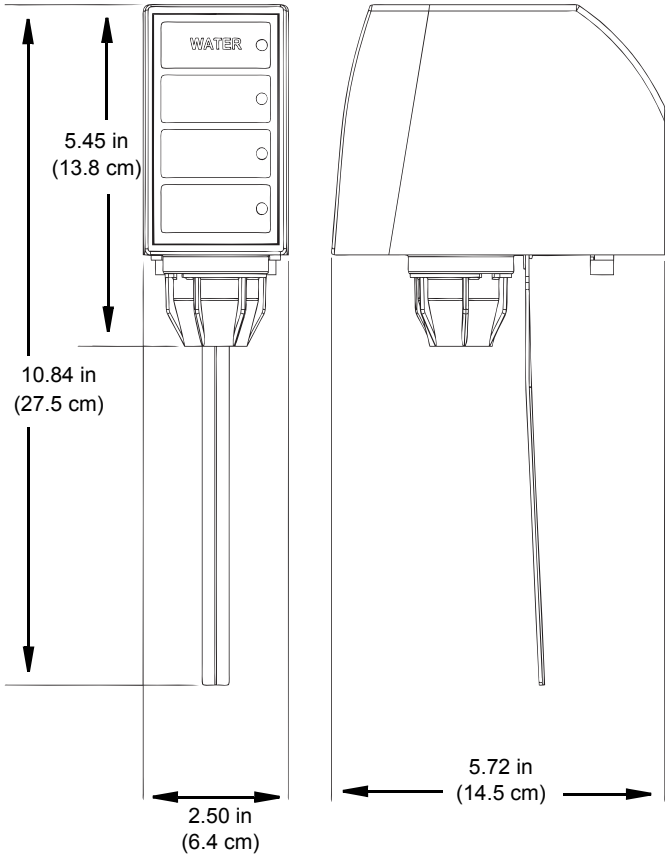
**Important**

**READ THIS BEFORE INSTALLATION**

Failure to follow these installation guidelines may affect warranty coverage.

### SPECIFICATIONS

| | |
|---|---|
| Valve height | 5.45 in (13.8 cm) |
| Valve width | 2.50 in (6.4 cm) |
| Valve depth | 5.72 in (14.5 cm) |
| Operating temperature range | 32–140 °F (0–60 °C) |
| Operational relative humidity range | 20–100% |
| Electrical rating | 24 VAC |
| Static water pressure | 40–60 psig |
| Static syrup pressure | 60 psig |
| $CO_2$ pressure | 70-75 psig |



## ELECTRICAL

> **⚠ Warning**
> Always unplug the power to the dispenser before making changes to the electrical wiring in the dispenser.

### Grounding

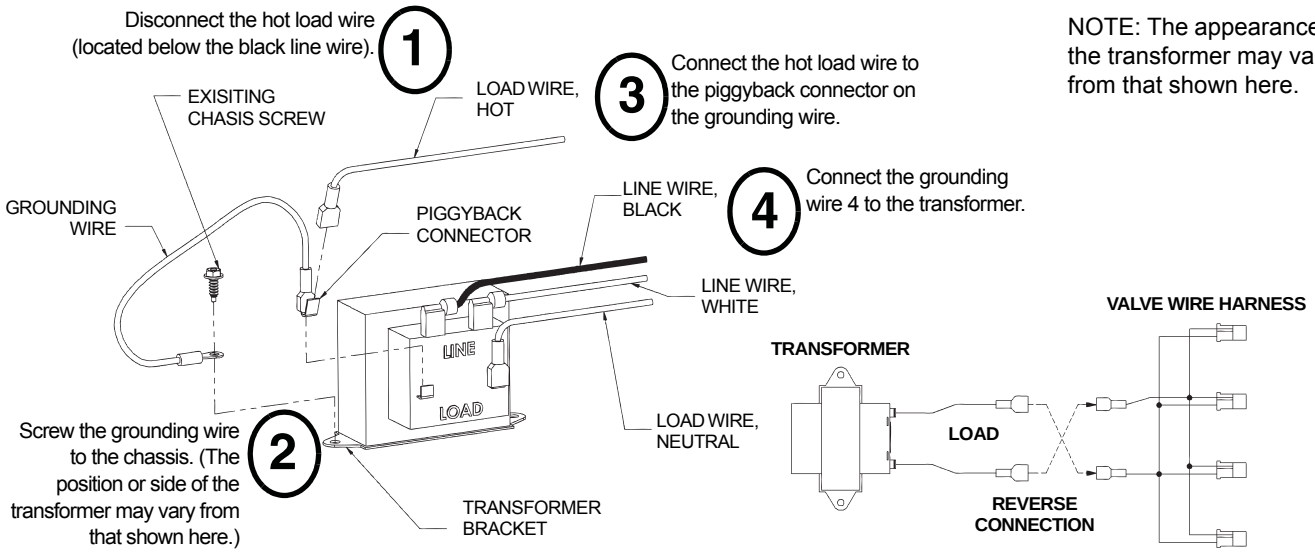
- All fountain equipment with a Variety valve installed must be properly grounded.
- The 24 VAC valve power supply must be properly grounded.

### Grounding The Dispenser For Autofill Variety Valves

For proper operation of the Autofill Variety valve, follow the steps below to determine if the existing Optifill valves need to be grounded.

NOTE: These steps are usually only need to be followed on retrofit applications.

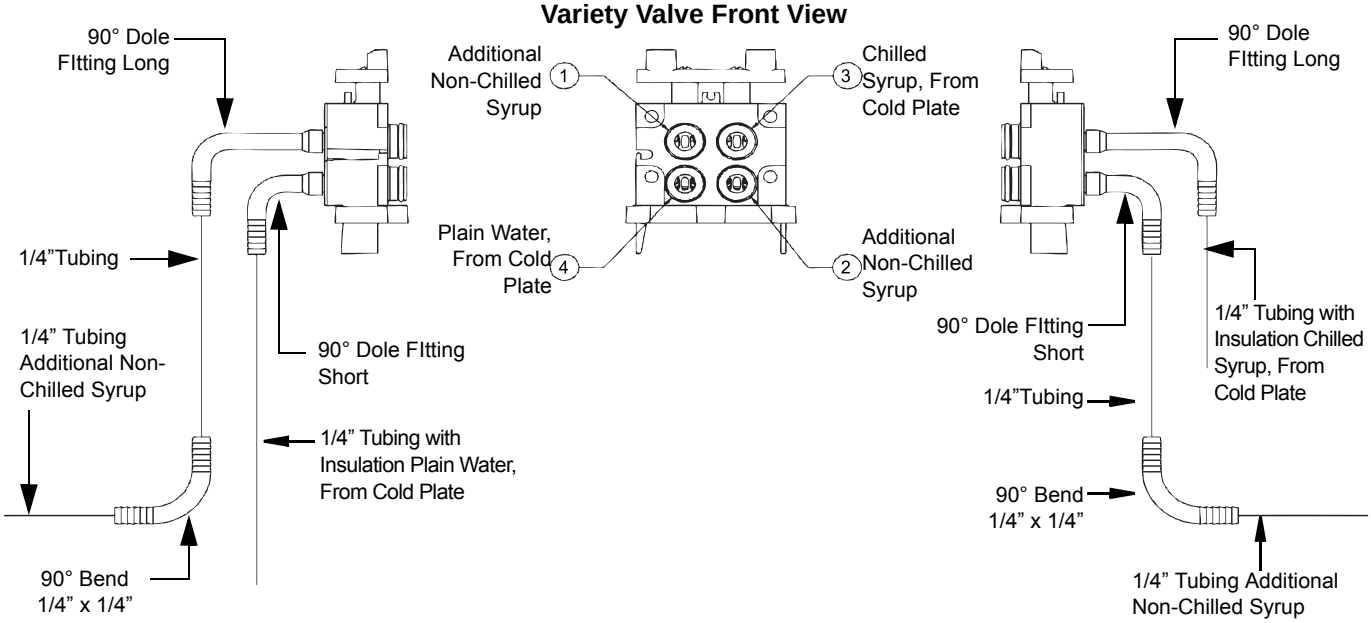
1. Turn on the power to the dispenser.
2. Disconnect the 24V power supply from an Optifill valve adjacent to the Variety valve.
3. Check the voltage across the white wire of the connector to the dispenser chassis. Check the voltage across the black wire of the connector to the dispenser chassis.
4. If the voltage across the white wire to the chassis is 24-27 volts, the transformer is properly grounded. Proceed with the Variety valve installation. If the voltage across the black wire to the dispenser chassis is 24-27 volts, reverse the load wires connected to the valve wire harness as shown below and proceed with Variety valve installation.
5. If the voltage across either the white or black wires to the chassis is less than 24 volts, a grounding wire must be installed on the transformer. Unplug the dispenser and install the grounding wire on the transformer as shown below.
6. After the grounding wire is installed, plug the dispenser in and turn on the power. Recheck the voltage across the white wire of the connector to the dispenser chassis and across the black wire of the connector to the dispenser chassis.
7. If the voltage across the white wire to the dispenser chassis is 24-27 volts, proceed with the Variety valve installation.
8. If the voltage across the black wire to the chassis is 24-27 volts, reverse the load wires connected to the valve wire harness and then proceed with Variety valve installation.
9. After installing the Variety valve, check all valves to make sure they all function properly.



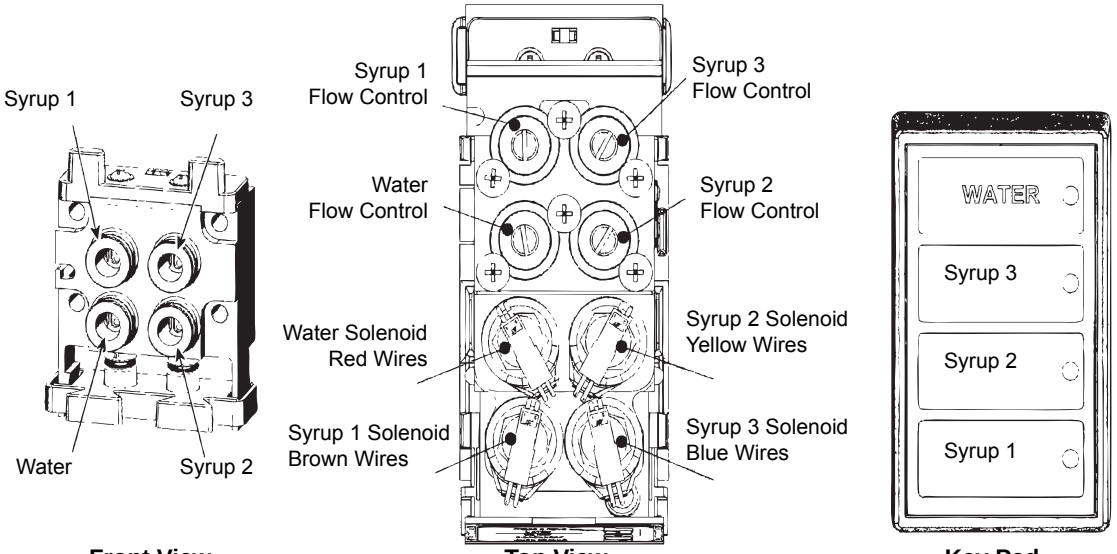

NOTE: The appearance of the transformer may vary from that shown here.

## PLUMBING

### Variety Valve Front View




### Mounting Block



When Installing the Servend dispenser please follow the installation instructions supplied in the Installation and Service Guide. Also follow the instructions below for finding and connecting the two ambient syrup lines for the Variety Valve.

**Ambient Syrup Lines**

1. Locate the two ¼" ambient syrup lines for Variety Valve flavors #2 & #3. (See Figure 1)

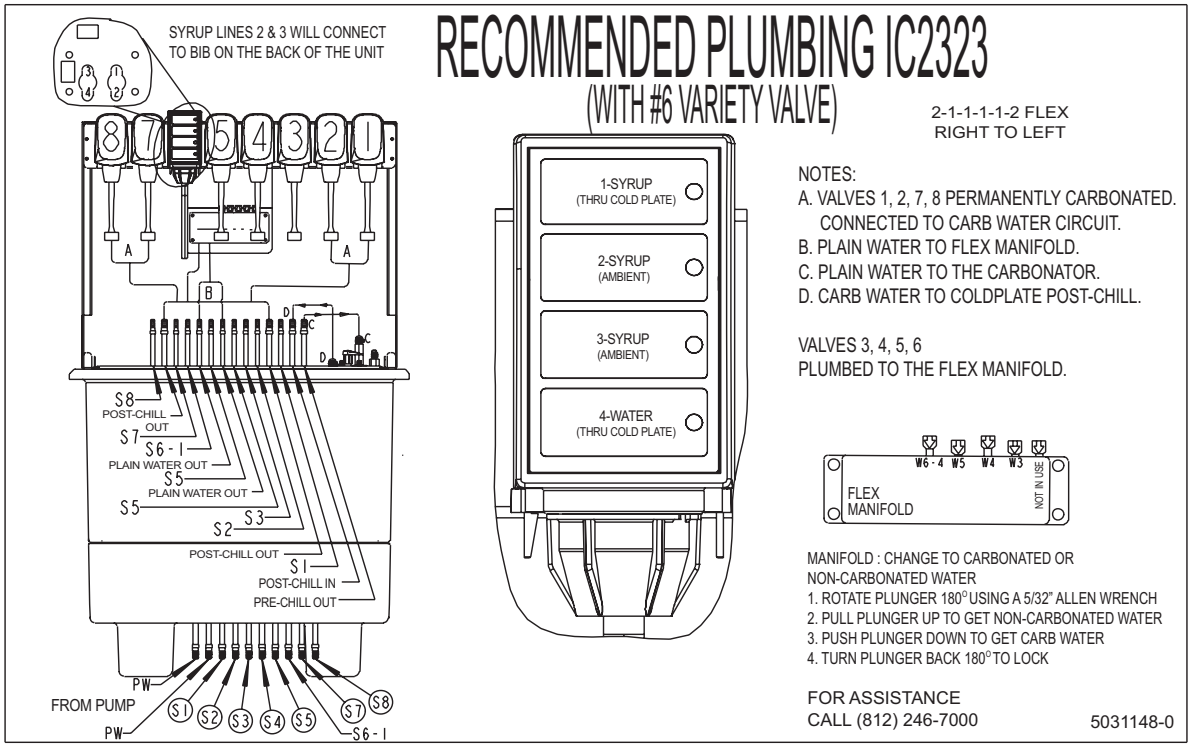
**Figure 1 (Flavor #2 & #3 Ambient Syrup Lines)**

2. Access the two ¼" ambient syrup lines by removing the tie strap used to secure the lines to the unit.
3. Connect the syrup line that will be flavor #2 on the Variety Valve to the ¼" ambient line marked #2. Secure the connection with an Oetiker Clamp.
4. Connect the syrup line that will be flavor #3 on the Variety Valve to the ¼" ambient line marked #3. Secure the connection with an Oetiker Clamp.

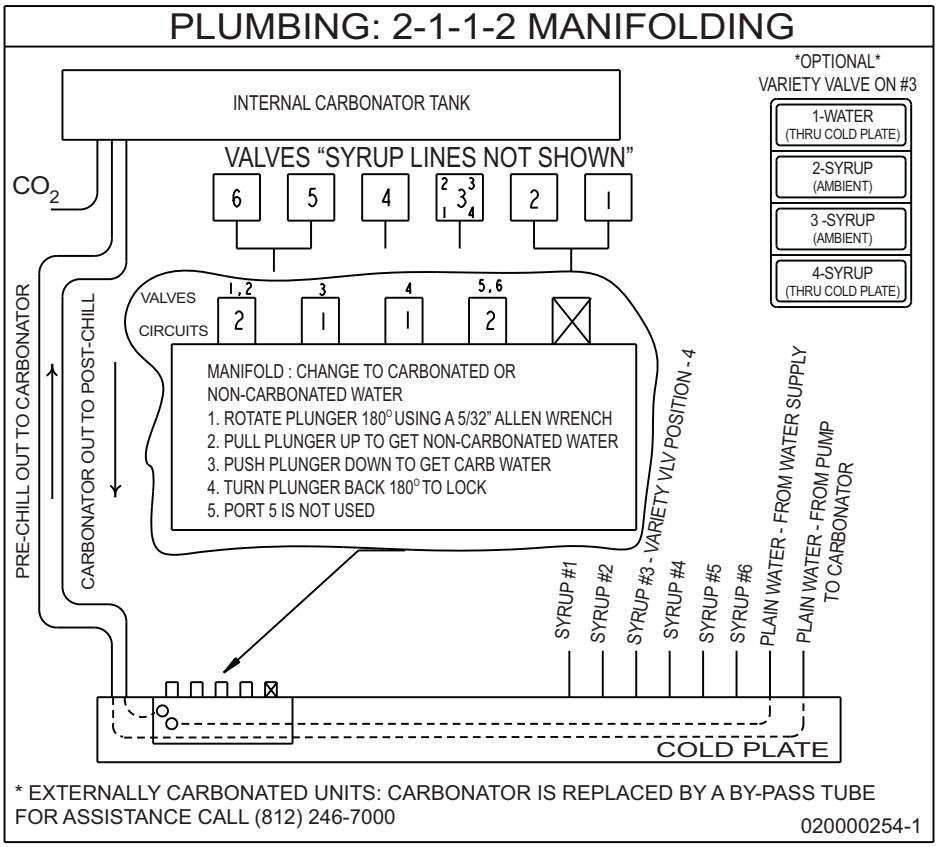
NOTE: Please refer to the McCann's Variety Valve manual or contact McCann's at 1-800-423-2429 for more information about the following:

- Setting valve brix
- Programing the Portion Control Buttons
- Maintenance
- Service

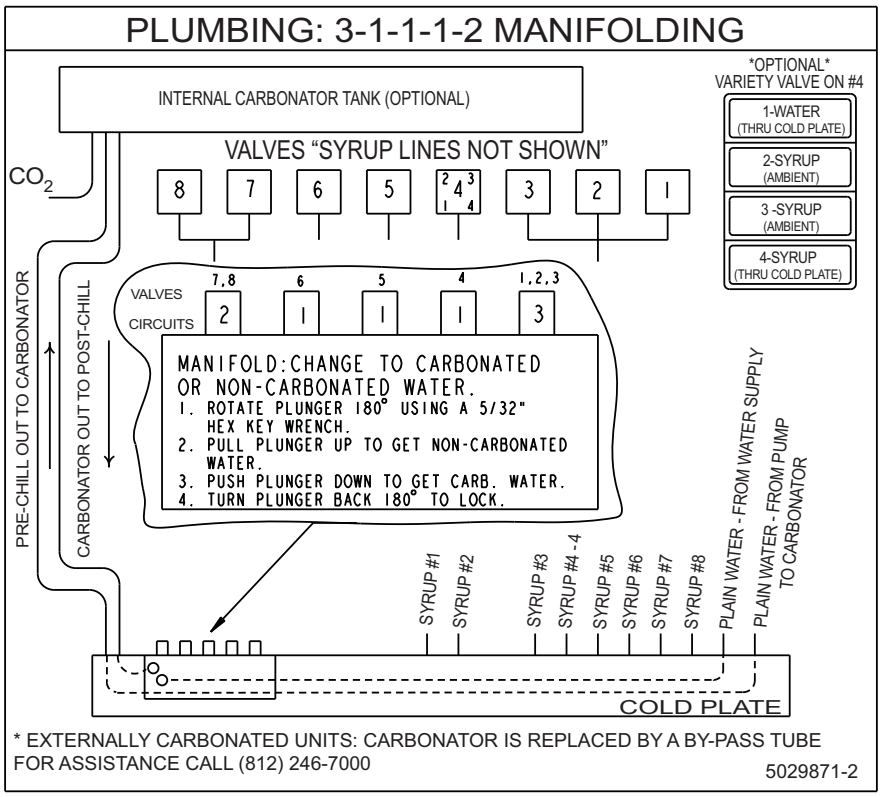
### IC-2323 8 VALVE DIAGRAM


RECOMMENDED PLUMBING IC2323
(WITH #6 VARIETY VALVE)
2-1-1-1-1-2 FLEX
RIGHT TO LEFT
SYRUP LINES 2 & 3 WILL CONNECT TO BIB ON THE BACK OF THE UNIT
8 7 6 5 4 3 2 1
1-SYRUP (THRU COLD PLATE)
2-SYRUP (AMBIENT)
3-SYRUP (AMBIENT)
4-WATER (THRU COLD PLATE)
NOTES:
A. VALVES 1, 2, 7, 8 PERMANENTLY CARBONATED. CONNECTED TO CARB WATER CIRCUIT.
B. PLAIN WATER TO FLEX MANIFOLD.
C. PLAIN WATER TO THE CARBONATOR.
D. CARB WATER TO COLDPLATE POST-CHILL.
VALVES 3, 4, 5, 6
PLUMBED TO THE FLEX MANIFOLD.
W6-4 W5 W4 W3
FLEX MANIFOLD
NOT IN USE
MANIFOLD : CHANGE TO CARBONATED OR NON-CARBONATED WATER
1. ROTATE PLUNGER 180° USING A 5/32" ALLEN WRENCH
2. PULL PLUNGER UP TO GET NON-CARBONATED WATER
3. PUSH PLUNGER DOWN TO GET CARB WATER
4. TURN PLUNGER BACK 180° TO LOCK
FOR ASSISTANCE CALL (812) 246-7000
5031148-0
S8 POST-CHILL OUT
S7
S6-1 PLAIN WATER OUT
S5 PLAIN WATER OUT
S5
S3
S2
POST-CHILL OUT
S1
POST-CHILL IN
PRE-CHILL OUT
PW
FROM PUMP
PW
S1 S2 S3 S4 S5 S7 S8
S6-1

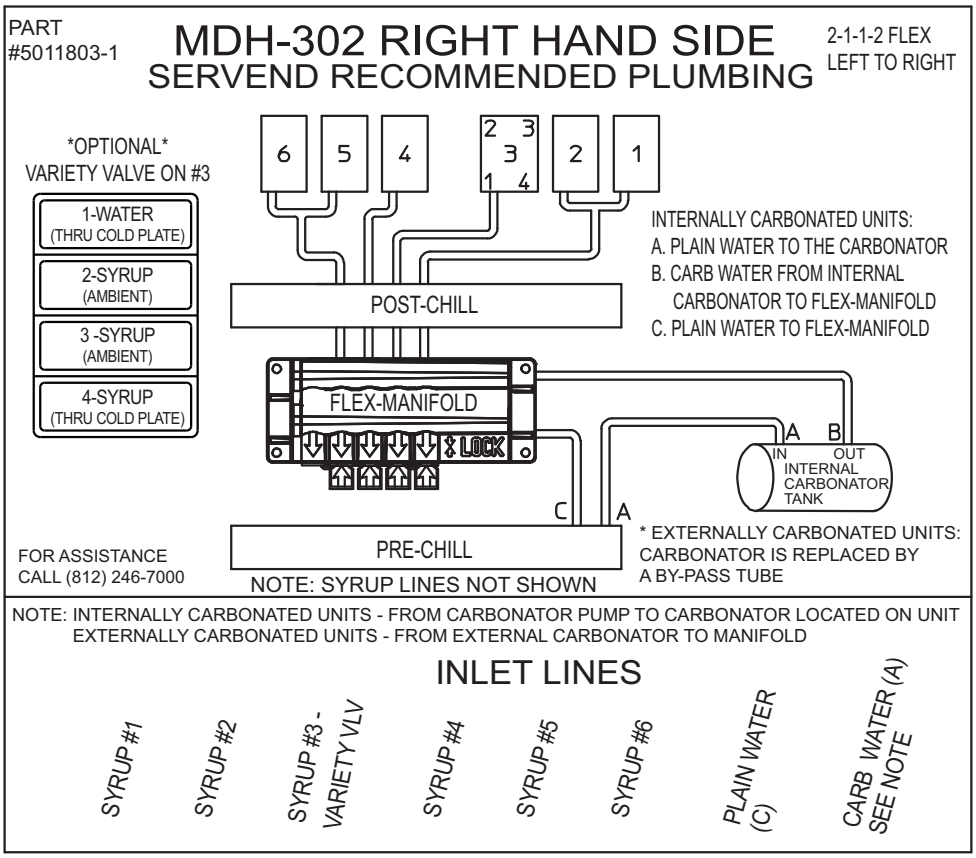
### SV-150 6 VALVE DIAGRAM


PLUMBING: 2-1-1-2 MANIFOLDING
*OPTIONAL*
VARIETY VALVE ON #3
1-WATER (THRU COLD PLATE)
2-SYRUP (AMBIENT)
3 -SYRUP (AMBIENT)
4-SYRUP (THRU COLD PLATE)
INTERNAL CARBONATOR TANK
VALVES "SYRUP LINES NOT SHOWN"
CO2
6 5 4 2 3 1 2 1
VALVES
CIRCUITS
1,2 3 4 5,6
2 1 1 2
MANIFOLD : CHANGE TO CARBONATED OR NON-CARBONATED WATER
1. ROTATE PLUNGER 180° USING A 5/32" ALLEN WRENCH
2. PULL PLUNGER UP TO GET NON-CARBONATED WATER
3. PUSH PLUNGER DOWN TO GET CARB WATER
4. TURN PLUNGER BACK 180° TO LOCK
5. PORT 5 IS NOT USED
PRE-CHILL OUT TO CARBONATOR
CARBONATOR OUT TO POST-CHILL
SYRUP #1
SYRUP #2
SYRUP #3 - VARIETY VLV POSITION - 4
SYRUP #4
SYRUP #5
SYRUP #6
PLAIN WATER - FROM WATER SUPPLY
PLAIN WATER - FROM PUMP TO CARBONATOR
COLD PLATE
* EXTERNALLY CARBONATED UNITS: CARBONATOR IS REPLACED BY A BY-PASS TUBE
FOR ASSISTANCE CALL (812) 246-7000
020000254-1

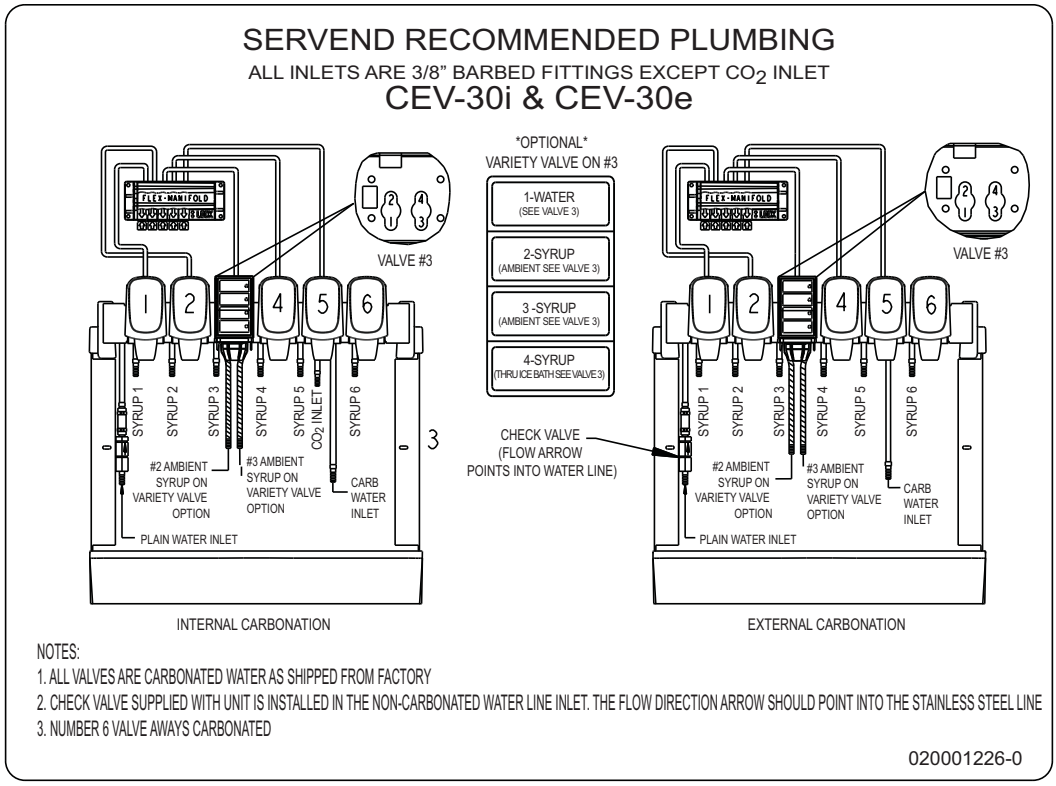
**SV 8 VALVE DIAGRAM**


PLUMBING: 3-1-1-1-2 MANIFOLDING
INTERNAL CARBONATOR TANK (OPTIONAL)
*OPTIONAL*
VARIETY VALVE ON #4
1-WATER (THRU COLD PLATE)
2-SYRUP (AMBIENT)
3 -SYRUP (AMBIENT)
4-SYRUP (THRU COLD PLATE)
VALVES "SYRUP LINES NOT SHOWN"
CO2
8 7 6 5 2 4 3 1 3 2 1
VALVES 7,8 6 5 4 1,2,3
CIRCUITS 2 1 1 1 3
MANIFOLD: CHANGE TO CARBONATED OR NON-CARBONATED WATER.
1. ROTATE PLUNGER 180° USING A 5/32" HEX KEY WRENCH.
2. PULL PLUNGER UP TO GET NON-CARBONATED WATER.
3. PUSH PLUNGER DOWN TO GET CARB. WATER.
4. TURN PLUNGER BACK 180° TO LOCK.
PRE-CHILL OUT TO CARBONATOR
CARBONATOR OUT TO POST-CHILL
SYRUP #1
SYRUP #2
SYRUP #3
SYRUP #4 - 4
SYRUP #5
SYRUP #6
SYRUP #7
SYRUP #8
PLAIN WATER - FROM WATER SUPPLY
PLAIN WATER - FROM PUMP TO CARBONATOR
COLD PLATE
* EXTERNALLY CARBONATED UNITS: CARBONATOR IS REPLACED BY A BY-PASS TUBE
FOR ASSISTANCE CALL (812) 246-7000
5029871-2

**MDH-302 12 VALVE DIAGRAM**



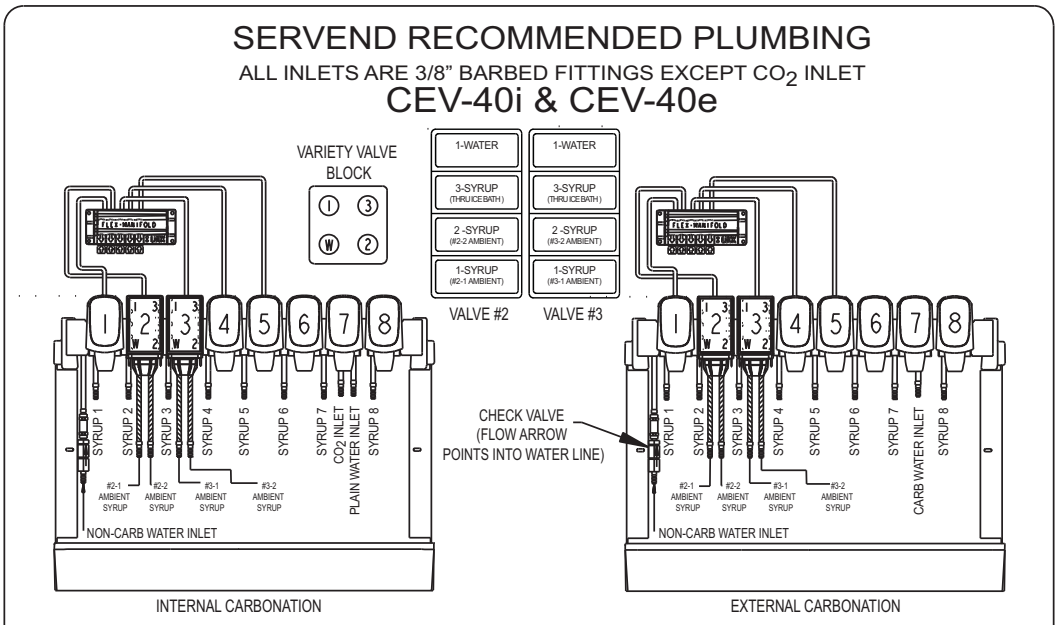
### CEV-30 6 VALVE DIAGRAM




NOTES:
1. ALL VALVES ARE CARBONATED WATER AS SHIPPED FROM FACTORY
2. CHECK VALVE SUPPLIED WITH UNIT IS INSTALLED IN THE NON-CARBONATED WATER LINE INLET. THE FLOW DIRECTION ARROW SHOULD POINT INTO THE STAINLESS STEEL LINE
3. NUMBER 6 VALVE AWAYS CARBONATED

020001226-0

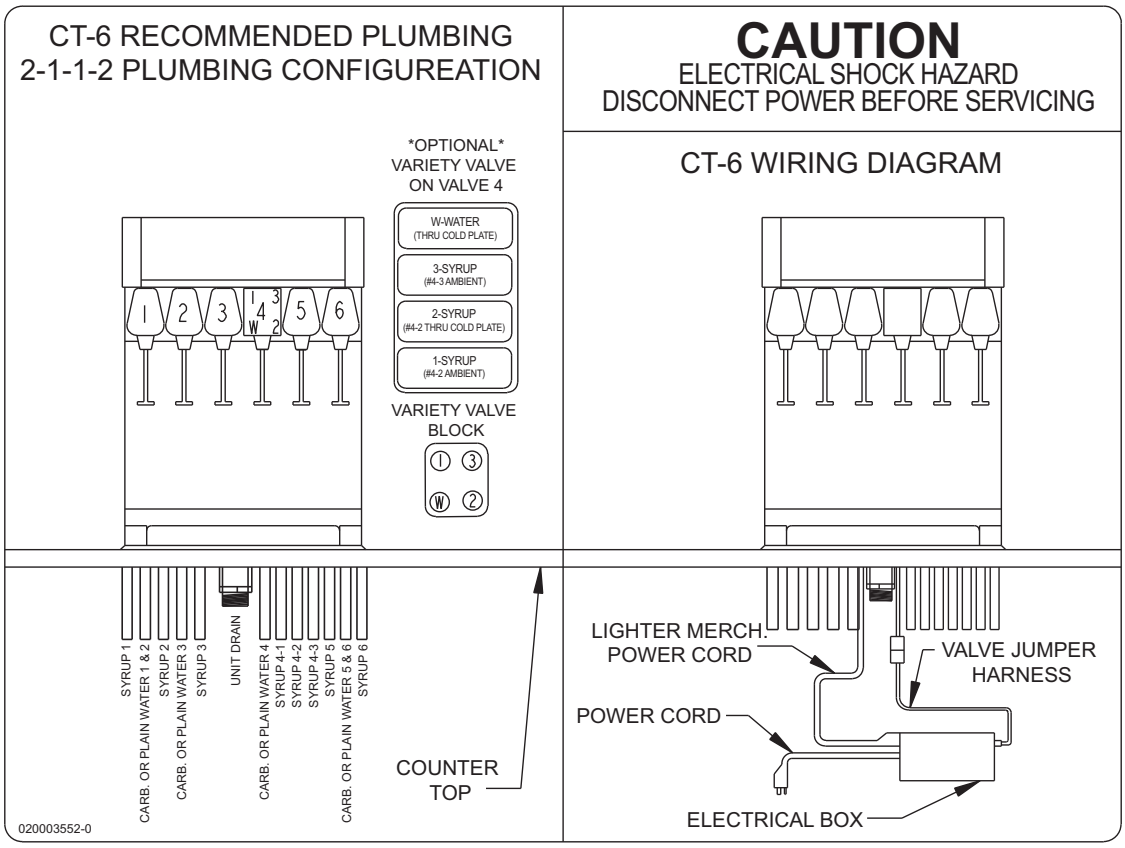
### CEV-40 8 VALVE DIAGRAM



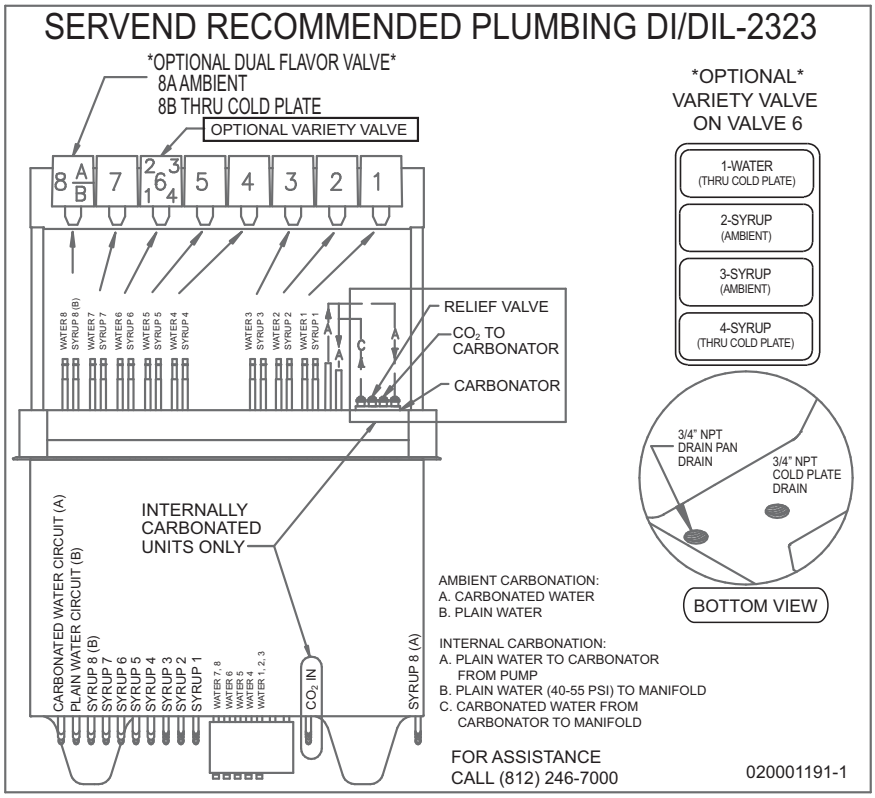

NOTES:
1. ALL VALVES ARE CARBONATED WATER AS SHIPPED FROM FACTORY
2. VALVE NUMBER 6 ,7, & 8 AWAYS CARBONATED
3. CHECK VALVE SUPPLIED WITH UNIT IS INSTALLED IN THE NON-CARBONATED WATER LINE INLET. THE FLOW DIRECTION ARROW SHOULD POINT INTO THE STAINLESS STEEL LINE

020002740-0

**CT-6, 6 VALVE DIAGRAM**

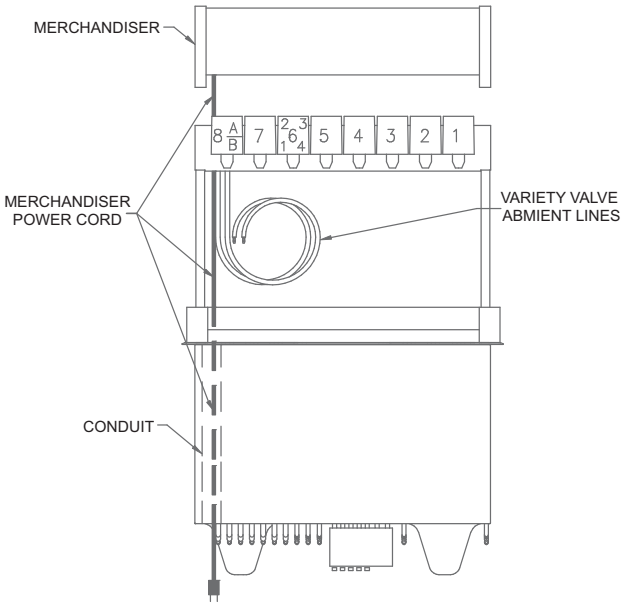


**DI/DIL-2323 8 VALVE POST-MIX PLUMBING & VARIETY VALVE**

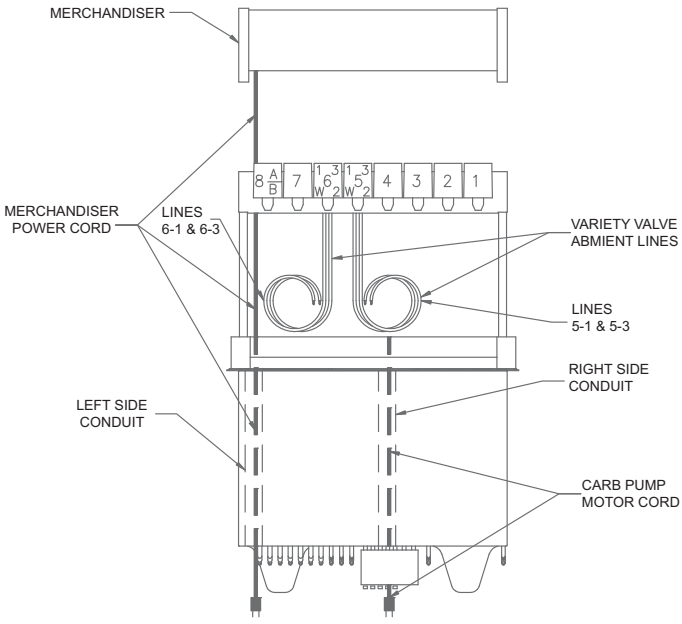



**Important**

Before routing Variety Valve ambient lines through conduit you must first route merchandiser power cord through conduit.




**Single Variety Valve**




**Dual Variety Valve**

Install the beverage tubing to the appropriate fittings. Refer to the cold plate drawing on the front of the chest for your individual set up.

## RETROFIT INSTALLATION

The Variety valve may be retrofitted to nearly any soft-plumbed fountain dispenser.

### 1. Inspect the Variety Valve

Thoroughly inspect the Variety valve upon delivery. Immediately report any damage that occurred during transportation to the delivery carrier. Request a written inspection report from a claims inspector to document any necessary claim. Make sure the following components are available to install the valve:

| Component | Quantity |
|---|---|
| Variety valve | 1 |
| Mounting block | 1 |
| Retrofit plate kit | 1 |
| 90° short dole fitting | 2 |
| 90° long dole fitting | 2 |
| 90° bends | 2 |
| Installation and service manual | 1 |
| 3/8 in × 1/4 in splicer | 2 |
| Oetiker clamps (13.3 mm or 11.3 mm)* | 8 |
| Sheet metal screws | 4 |

*Size depends on tubing brand. Always use the manufacturer's recommended hose clamp size.

NOTE: A knockout tool is required for installation and is not provided with the Variety valve.

### 2. Prepare the Site

A. Make sure the following equipment/supplies are available before starting the installation:

| Component | Quantity |
|---|---|
| BIB pumps (Shurflo pumps are recommended) | 2 |
| BIB connectors | 2 |
| Space for 2 extra BIB bags or an additional BIB rack | NOTE: Make sure that high movers are placed on the lower section of the rack. |
| 3/8 in BIB tubing | As needed |
| 3/8 in standard beverage line for non-chilled syrup (Bev-Ultra Seal) | As needed |
| 1/4 in flexible tubing | As needed |
| Socket wrench | 1 |
| 1 1/8 in socket | 1 |
| Phillips screwdriver | 1 |
| Safety glasses | 1 |
| Alcohol wipes or rubbing alcohol | As needed |
| Oetiker pliers | 1 |
| Tube cutter | 1 |
| UF-1 syrup separator | 1 |
| Pepsi brix cup | 1 |
| Food grade lubricant | As needed |
| Knockout tool kit | 1 |

B. Verify the plain water pressure is not too high or too low.

- Too high—If the plain water pressure is ≥60 psig, install a pressure regulator in the back room where the plain water line branches out.
- Too low—Use one of the following methods to check for low water pressure:
  - Open the plain water valve and a carbonated water valve at the same time. When the carbonator pump turns on, read the pressure gauge. If the pressure is <35 psig, a dedicated plain water line is necessary.
  - If a pressure gauge is not available, open the existing plain water valve and note the amount of water flowing. Open a carbonated water valve until the carbonator pump turns on. Check the plain water flow again. If the water flow is greatly reduced, plan for a dedicated plain water line from the back room to the Variety valve.

C. Run new syrup lines from the back room to the dispenser.

- If the existing syrup lines are underground and 2 extra lines are not available in the current tube bundle, run a new tube bundle.
- If the existing syrup lines are in the ceiling, run 2 new lines beside the existing lines.

D. D. For carbonated water drink set up, check access to carbonated water line or carbonator.

### 3. Remove the Existing Valve

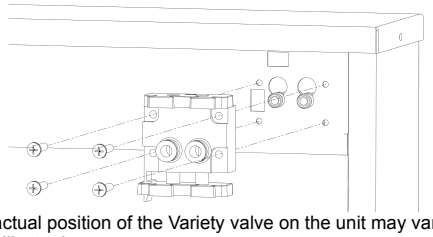
**⚠ Caution**
Use safety glasses during the installation.

A. Unplug the power supply to the unit.

B. Depressurize the water and syrup BIB. Flush all lines of all syrup and water.

C. Gain access to the back of the mounting plate. For drop-in dispensers, remove the splash plate. For ice-drink units, remove the splash plate and if needed, remove the ice chute.

D. Remove the existing plain water valve and mounting block from the dispenser. Remove 3 adjacent valves to provide more working space.

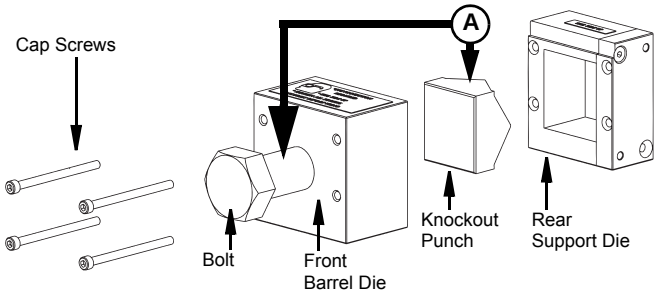


NOTE: The actual position of the Variety valve on the unit may vary from that shown in the illustration.

E. Remove the inlet water and syrup fittings from the mounting plate. If the fittings are foamed in place, remove the foam to access the fittings. Push the 24 volt connector and wires to the back of the mounting plate.

**4. Install the Retrofit Mounting Plate**

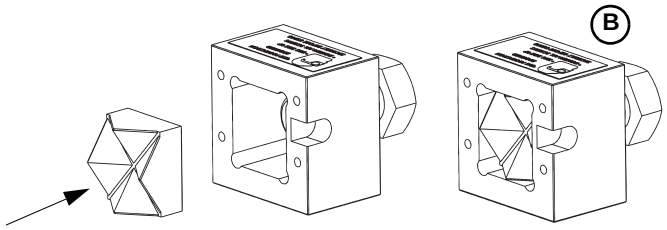
A. Apply the grease that is included in the tool kit to the tip and the threads of the bolt and to the sides and back of the punch before each use.



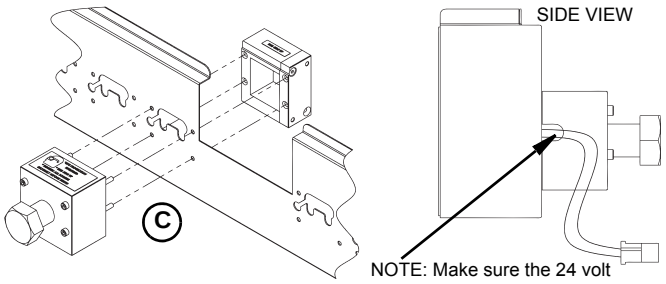

**Knockout Tool Kit**

NOTE: Included but not shown: additional cap screws (4), hex key, grease

B. Load the knockout punch (cutting part) into the front barrel die. Make sure the bolt is backed out enough to allow the points of the knockout punch to be fully enclosed in the front barrel die so that the front barrel die will lay flush against the mounting plate.

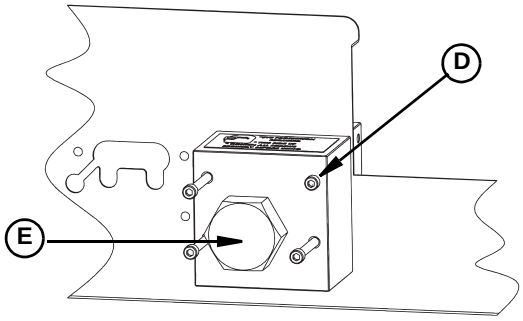



C. Hold the rear support die behind the mounting plate so that the 4 holes on the die are aligned with the mounting plate holes. Make sure the label on each piece of the knockout tool is facing up.




NOTE: Make sure the 24 volt connector and wires are routed through the wire chase on the front barrel die.

D. Place the front barrel die against the mounting plate aligning the cap screws with the mounting plate holes. Tighten each of the 4 cap screws with the included hex key.




To ensure the cap screws are properly tightened, tighten each cap screw until its head bottoms out on the face of the front punch barrel, and tighten an additional 1/2 turn. Recheck the tightness of each cap screw, and retighten if necessary.

**Important**

Make sure each of the 4 cap screws are securely tightened prior to proceeding. If all 4 screws are not tightened properly, the tool may not operate correctly and damage to the tool may occur.

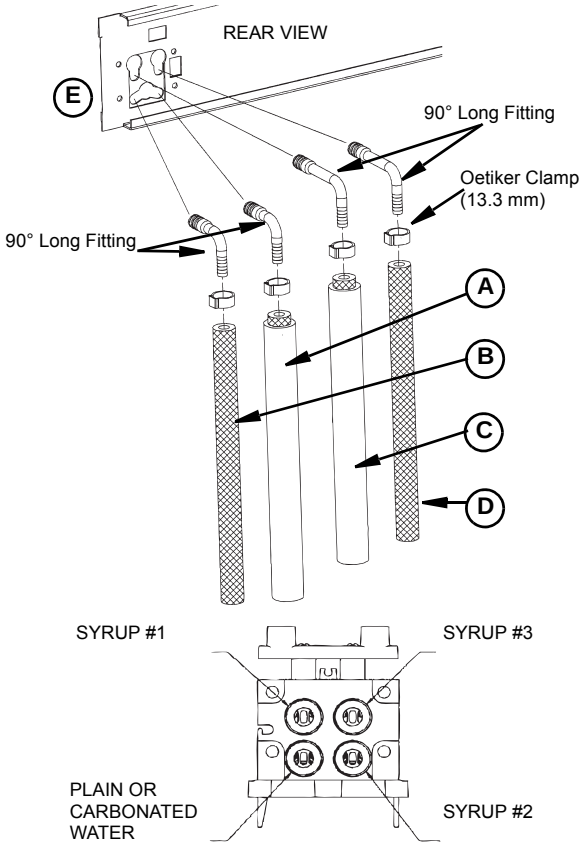
E. Use a socket wrench to turn the bolt clockwise until the knockout punch completely breaks through the mounting plate.

F. Remove the entire knockout tool and dispose of the piece punched out of the mounting plate.

### 5. Create New Lines

> **⚠ Caution**
> Use safety glasses during the installation.

A. Use a 90° short fitting, 1/4 inch tubing, and insulation from the existing PLAIN water line or CARBONATED water line.

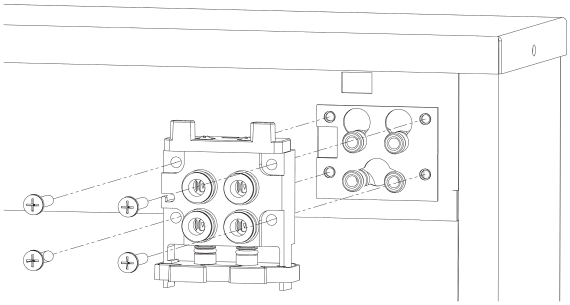



B. Create a new SYRUP LINE (Syrup #2) using a 90° short fitting and 1/4 inch tubing.

C. Create the CHILLED SYRUP LINE (Syrup #3) using a 90° long fitting, 1/4 inch tubing, and the insulation from existing chilled syrup line.

D. Create another new SYRUP LINE (Syrup #1) using a 90° long fitting and 1/4 inch tubing.

### 6. Install the Mounting Block



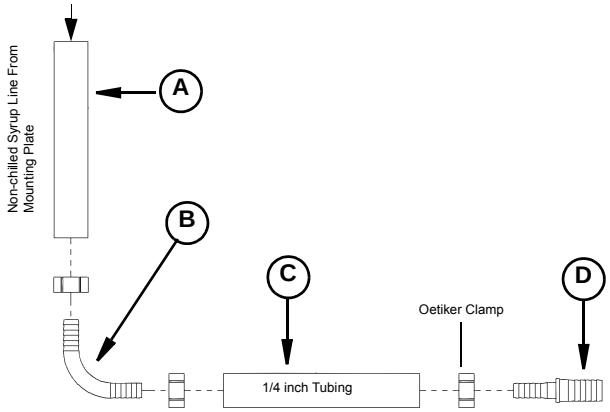
A. Remove the front and rear covers from the Variety valve. Remove the 4 screws from the retrofit mounting plate.

B. Align all 4 inlet fittings with the mounting block inlet holes. Use any food-grade lubricant on the O-rings as needed.

C. Use the existing screws to tighten the mounting block to the mounting plate. If the screws are not long enough, use the screws provided in the retrofit kit.

NOTE: Do not use the screws in the retrofit kit on drop-in units.

### 7. Splice the Lines




A. Trim the length of the additional non-chilled syrup lines as necessary to route the tubing under the dispenser.

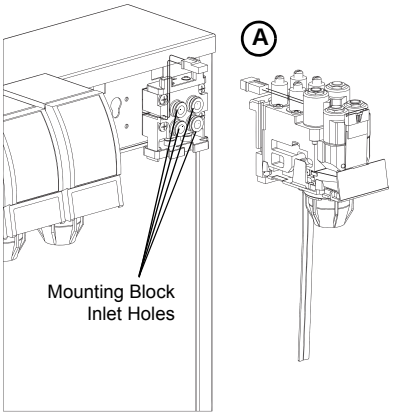
B. Use a 90° bend to route the tubing under the dispenser.

C. Use 1/4 inch tubing to run the additional non-chilled syrup lines to the respective 3/8 inch BIB tubing. Trim the length of the 1/4 inch tubing as necessary.

D. Use the 1/4 inch × 3/8 inch splicer to connect the non-chilled syrup line to the BIB tubing.

E. Connect the water and chilled syrup lines to the cold plate and trim the length as necessary.

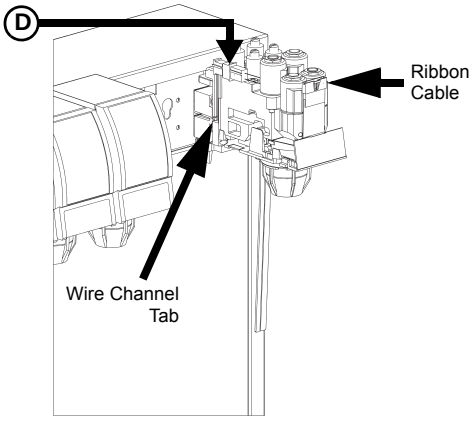
### 8. Install the Variety Valve




A. Align the Variety valve with the four mounting block inlet holes and gently push the valve in (toward the mounting block) until the back of the valve is flush with the mounting block.

B. Hold the front of the valve and push up on the bottom plate of the mounting block. You will hear the locking sound on the mounting block. (This is the same mounting method used with standard UF-1 valves.)

C. Remount the remaining valves (those that were removed to make working room). When all the valves are in place, slowly pressurize the water and syrup lines one at a time and make sure no leaks occur.



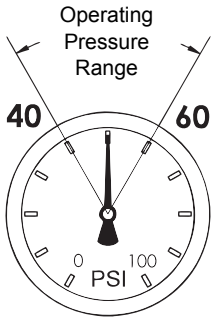

D. Attach the 24 volt connector to the power supply. Make sure the wires are placed inside the channel. If the wires do not fit in the channel, trim the tab enough to make the wires fit.

E. Brix the valve (see Valve Brix). Place the rear cover on the valve. Make sure the ribbon cable is placed behind the support on the rear valve cover.

F. Connect the ribbon cable on the front cover to the ribbon cable on the valve and place the front cover on the valve.

### SYSTEM PRESSURES

**Incoming tap water** - must be at a minimum dynamic pressure of 40 psi and maximum static pressure of 60 psi.




**Important**

The operating water pressure for the Variety Valve is 40-60 psig. If the incoming water pressure is not 40-60 psig, adjust the water regulator. If a water regulator is not installed, it is strongly recommended to install a water regulator and, if necessary, a water booster system. The operating syrup pressure for the Variety Valve is 60 psig

**Important**

Water boosters are preset to turn on at 65 psi and off at 85 psi.

### ADA KEY PADS

*These instructions are for installations with this option.*

1. Remove power from the unit.

**Merchandiser Removal**

NOTE: Not necessary on CEV units, ADA connections are made below the valve mount cap on these models.

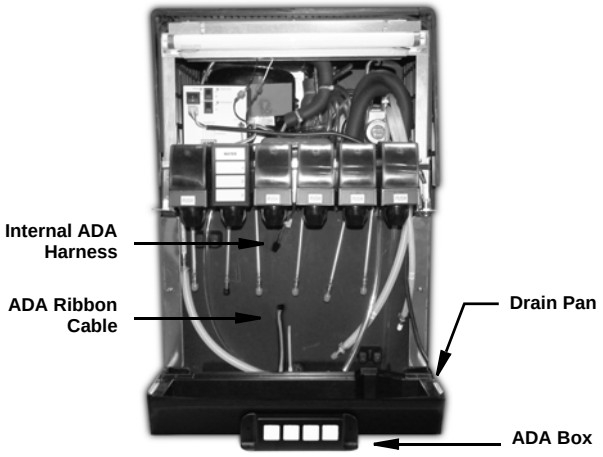
2. Gain access to the merchandiser area of the dispenser by one of the following methods;
   A. MDH Series units, remove the medallion from merchandiser to gain access to the area above the valve mount cap. Medallions are removed through the top of standard merchandisers and either side of the extended merchandisers.
   B. SV & SVi Series units, loosen the two knurled fasteners located in the top of the merchandiser that hold the merchandiser in place. Then remove the merchandiser by lifting up and tilting forward.

**Splash Panel Removal**

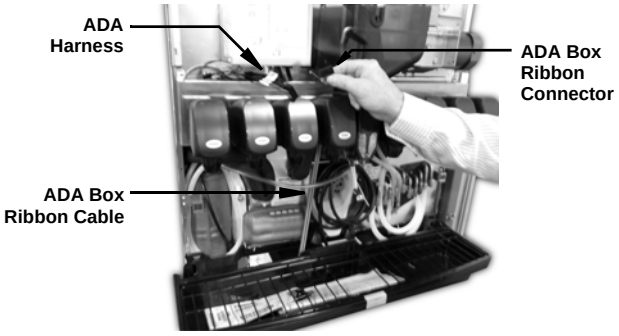
3. Remove the splash panel from the unit by removing the two (2) phillips head screws holding it in place. On CEV units remove the drain pan to gain access to the two (2) splash panel screws.

**ADA Wiring**

4. Route the ADA ribbon cable under the drain pan.
5. Continue routing the ADA cable up to the ADA harness;
   A. CEV units, ADA harness is clipped to the wall of the CEV below the valve mount cap.



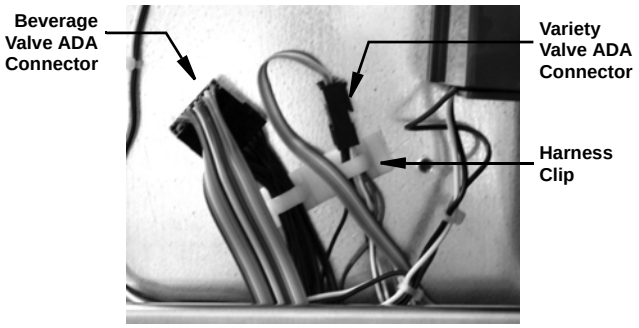

   B. SV & SVi units, continue routing the ADA cable behind the valve mount cap on the left hand side of the unit and connect to the ADA harness clipped to the foam front.




   C. MDH units locate the ADA harness, on units with a crusher it will be on the left of the ice chute, non-crusher units will be on the right. Connect to the ADA harness that is clipped to the foam front.

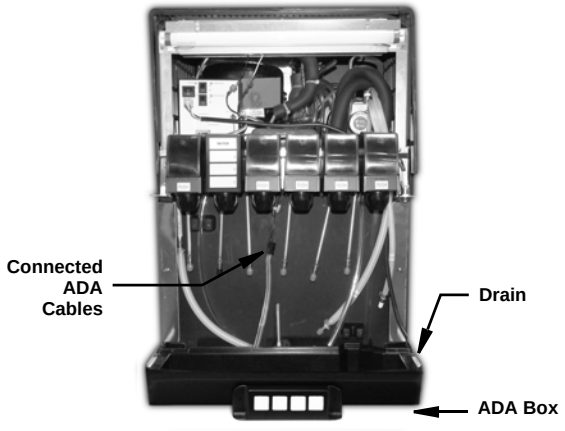
6. Neatly tuck in and take up any slack remaining in the ADA ribbon cable so it will not be in the way of any moving parts or panels when they are placed back on the unit.

NOTE: Units that also have ADA for beverage valves will have 2 harness connections, one for the beverage ADA Key Pad Box and one for the Variety Valve ADA Box. The Variety Valve uses the smaller connector.



### Drain Pan & ADA Touch Pad Box

7. Attach the drain pan to the unit.
8. Center the ADA Key Pad Box (or Boxes if more than will be used) with the unit in front of the drain pan and secure into place.



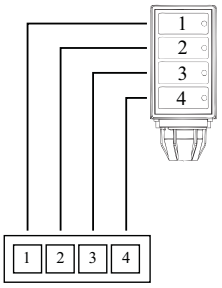
**Important**

If mounting the ADA Box directly in front of the drain pan on the counter top leave a minimum of 1 inch space between the bottom edge of the drain pan and the ADA Box to allow space for drain pan removal. CEV units may need more space for drain pan removal, mounting to the front edge of the counter top may be necessary.

9. Apply corresponding drink labels to the ADA key pads using the ADA Key Pad Matrix.

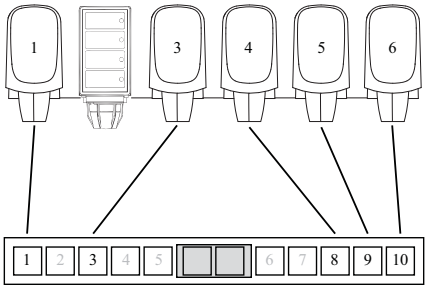
NOTE: Variety Valve Drinks correspond from top to bottom on the valve to left to right on ADA key pads. If buttons are not used they will be blanked out.

### ADA Key Pad Matrix

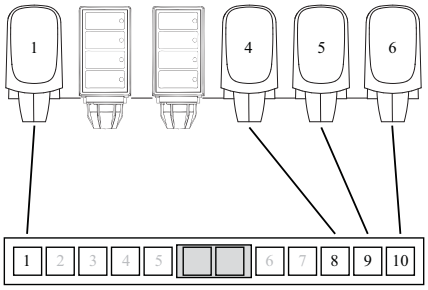



**4 Button Variety Valve**

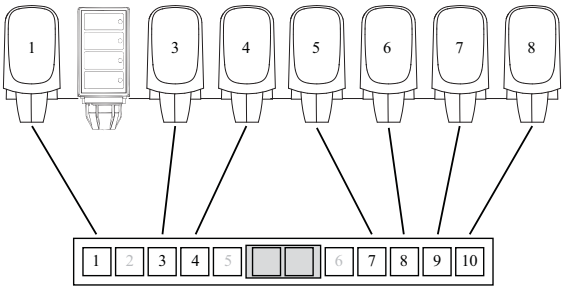
**6 Valve Dispensers (1 Variety Valve)**



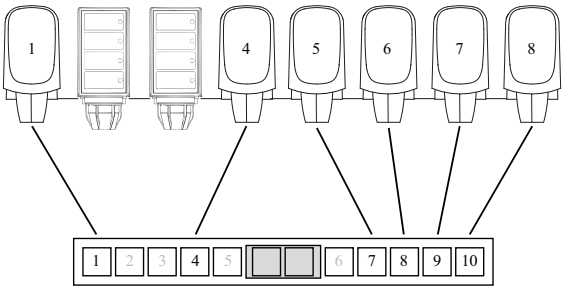

**6 Valve Dispensers (2 Variety Valves)**




**8 Valve Dispensers (1 Variety Valve)**




**8 Valve Dispensers (2 Variety Valve)**



### Finish Installation

10. Put the splash panel and merchandiser back onto the unit and reinstall the screws that hold them in place.

Restore power to the unit.

## Starting Your Beverage System & Dispenser

Upon completion of the beverage dispenser and / or system installation, all tubing, dispenser, and system components must be cleaned and sanitized prior to use.

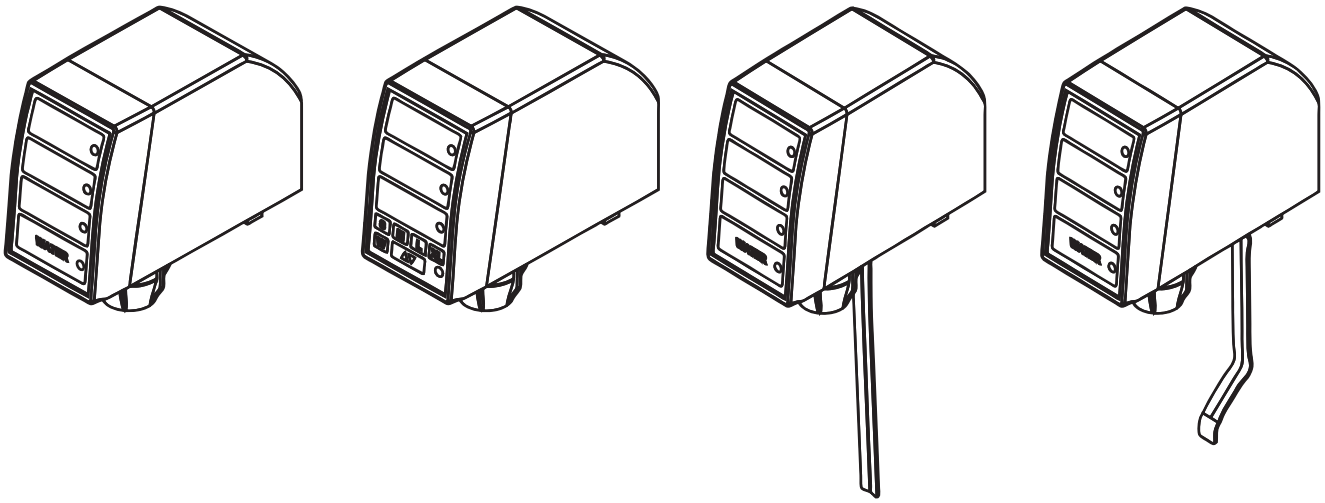
NOTE: At installation, equipment, dispensers, and tubing get moved through many environments, dirt, dust, chases, insulation, drywall, etc. It is an important procedure and best practice to address cleaning to deliver the best quality drink to your customer.

**Important**

Clean and sanitize the water and syrup circuits according to instructions provided in this manual. Clean and sanitize the dispenser components according to instructions provided in this manual. Seal to counter top when no legs are used with the unit. Consult and use local health codes if a discrepancy occurs between this manual and your local health codes.

# Section 3
# Operation

## General



This unit is equipped with a McCann's Variety Valve. The Variety Valve is capable of dispensing three different flavors of plain water beverages. Four models of the Variety Valve are available:

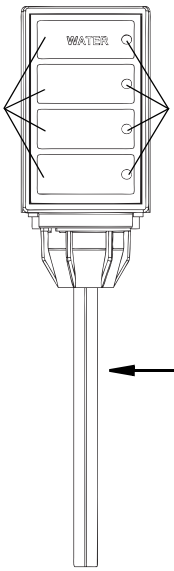
- **Autofill** – The user places a cup against the dispensing lever and the valve automatically dispenses until liquid or foam touches the lever.
- **Sanitary lever** – The user manually dispenses a beverage by pressing the cup against the dispensing lever until the cup is full.
- **Self-serve** – The user manually dispenses a beverage by pressing the flavor button until the cup is full.
- **Portion control** – The user selects the beverage flavor and dispenses the beverage by pressing a pre-programmed portion size button.

NOTE: The Servend dispenser has been slightly modified to adapt to the 3-flavor Variety Valve. Please take time to read the information in this Manual to familiarize yourself with installing the Servend dispenser equipped with the Variety Valve.

## Sequence of Operation

(1) Make sure the Variety valve is securely mounted, water / syrup pressures are adjusted, and the valve is brixed.

### AUTOFILL



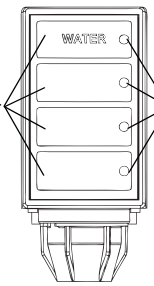

(2) Select the beverage flavor to dispense.

(3) One of the LED indicators will light up showing the flavor/water chosen.

Place a cup against the lever under the dispensing nozzle. The valve starts dispensing when the cup presses against the lever. The valve will dispense until liquid or foam touches the lever.

NOTE: If the cup is removed prior to the liquid or foam touching the lever, the valve will stop dispensing.

### SELF-SERVE



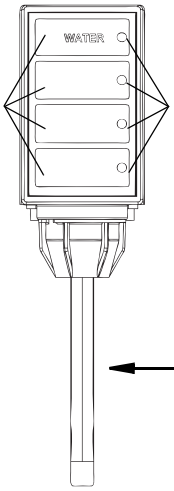

(3) Press and hold one of the flavor buttons or the water button.

(4) One of the LED indicators will light up showing the flavor/water chosen.

(5) When the cup is adequately filled, release the button to terminate dispensing.

(2) Place a cup under the dispensing nozzle.

### SANITARY LEVER

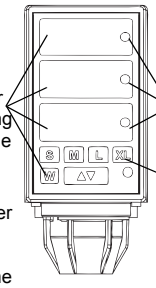



(2) Select the beverage flavor to dispense.

(3) One of the LED indicators will light up showing the flavor/water chosen.

(4) Press and hold a cup against the lever under the dispensing nozzle until the desired amount of beverage is dispensed.

### PORTION CONTROL




(3) Select the desired flavor or water by pressing and releasing the corresponding button.

NOTE: The water button, labeled with a W, is located below the portion size buttons.

(4) One of the LED indicators will light up showing the flavor/water chosen.

NOTE: There is no LED indicator for water.

(5) Press and release the desired portion size button. The drink will dispense for either the factory-set time period or for the programmed time period.

(2) Place a cup under the dispensing nozzle.

(6) To terminate a timed dispense cycle, press and RELEASE the Cancel/Pour button during the timed dispense cycle.

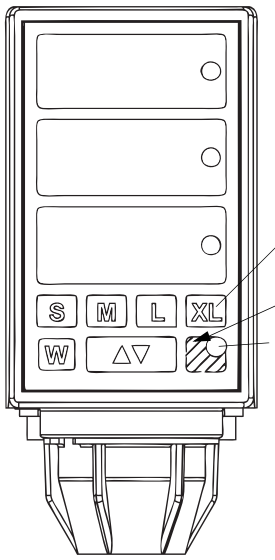
To top off the beverage after the dispense cycle is complete or to manually dispense the beverage, press and HOLD the Cancel/Pour button until the cup is adequately filled.

## Programming the Portion Control Buttons

Each portion size is programmed at the factory for the following default times:

- Small – 2.0 seconds
- Medium – 3.0 seconds
- Large – 4.0 seconds
- Extra large – 6.0 seconds

After the valve is brixed, the portion size buttons can be easily reprogrammed in the field from the front control panel.




5. Repeat steps 2–4 for each portion size to be programmed. NOTE: Not all portion sizes have to be programmed.
4. Release the portion size button. The program mode indicator will stop flashing and the dispense time will be stored to memory.
3. Press and hold the desired portion size button until the proper amount of beverage is dispensed into the cup. The program mode indicator will flash.
1. Enter the programming mode by pressing and holding the hidden program button for 3 seconds without interruption. When the programming mode is entered, the program mode indicator is illuminated.
2. Place the appropriate size cup containing the desired amount of ice under the dispensing nozzle.
6. Exit the program mode by pressing and holding the hidden program button for 3 seconds. The most recent settings will be saved and the program mode indicator will turn off.

### RESTORING FACTORY DEFAULT SETTINGS

To restore the factory default setting, enter the programming mode and then press and hold the Cancel/Pour button [△▽] for 3 seconds while at the same time pressing the desired portion size button. The factory default for that portion size button will be restored.

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# Section 4
# Maintenance

## Cleaning

All cleaning must meet your local health department regulations. The following cleaning instructions are provided as a guide.

**⚠ Caution**

Do not expose the front valve cover ribbon cable to water.

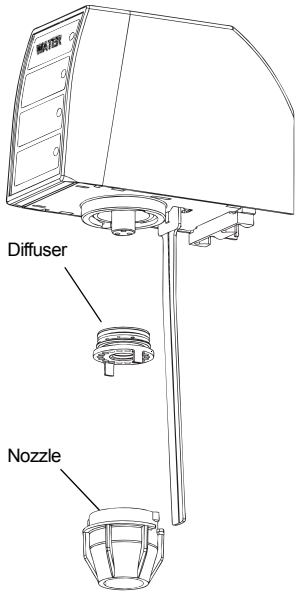
**⚠ Caution**

Use only warm soapy water to clean the exterior of the tower. Do not use solvents or other cleaning agents. Do not pour hot coffee into the drain pan. Pouring hot coffee down the drain pan can eventually crack the drain pan, especially if the drain pan is cold or still contains ice.

**⚠ Warning**

**Electric Shock Hazard**

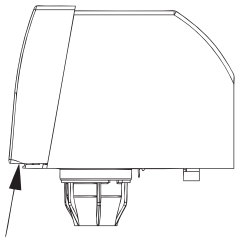
Unplug unit before servicing or cleaning.



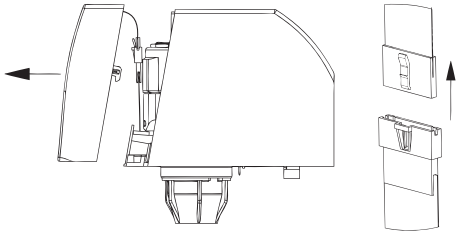

1. Mix warm (120 °F) water with mild detergent.
2. Remove the nozzle assembly from the dispensing valve. Separate the diffuser from the nozzle
3. Wash the diffuser (black) and the nozzle in the detergent solution.
4. Rinse the diffuser and nozzle in clean water.
5. Reassemble the diffuser and nozzle on the dispensing valve.

## How To Replace The Front Cover

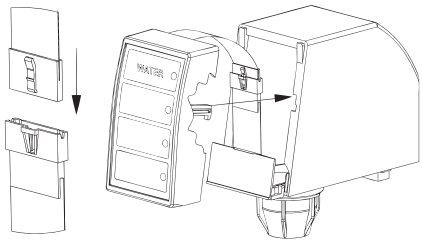
1. Remove the valve front cover by pushing it upward and pulling it out away from the valve.



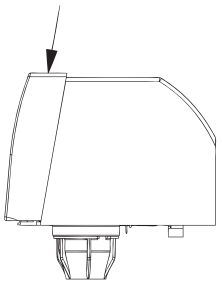
2. Disconnect the ribbon cable on the front valve cover from the ribbon cable on the valve by pressing and holding the latch.



3. Connect the ribbon cable on the new front valve cover to ribbon cable on the valve.
4. Align the hooks on the front cover with the slots on the rear cover and push the front cover in until it snaps in place.




5. Press down on the front valve cover until it snaps into place.

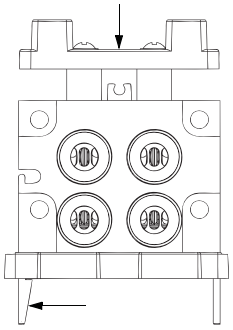


## Mounting Block

### REMOVING A VALVE

> **⚠ Warning**
> **Electric Shock Hazard**
> Unplug unit before servicing or cleaning.

② While holding the tab, push down on the top plate and pull the valve out.

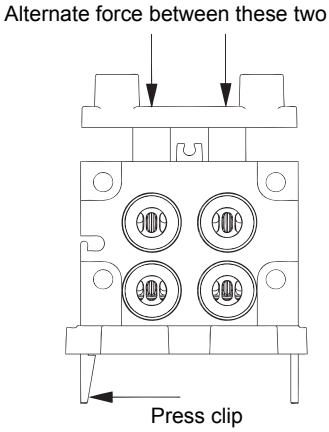


① To remove a valve from the mounting block, pull the tab on the left-hand side out and hold.

> **⚠ Caution**
> Hold the valve securely because pressure may cause the valve to move outward slightly.

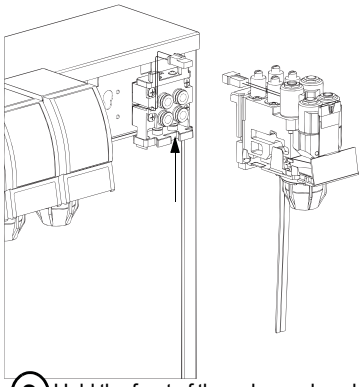
If the Variety valve is difficult to remove from the mounting block:

1. Ensure the lower left clip is pressed to the left when pushing down on the top plate of the mounting block. DO NOT EXERT EXCESSIVE FORCE ON THE CLIP.
2. When applying force to push down the mounting block top plate, alternate where the force is applied on the top plate; push down on the left side and then the right. Repeat until the top is fully pushed down.



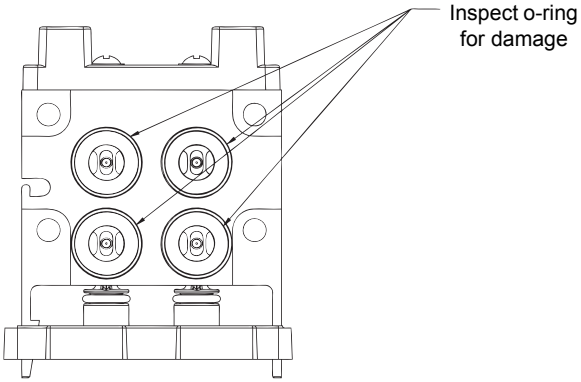

### INSTALLING A VALVE

① Align the Variety valve with the four mounting block inlet holes and gently push the valve in (toward the mounting block) until the back of the valve is flush with the mounting block.



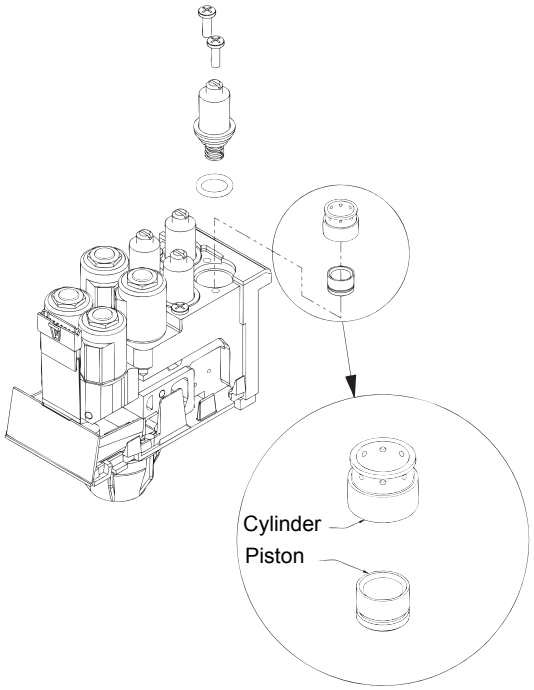
② Hold the front of the valve and push up on the bottom plate of the mounting block. You will hear the locking sound on the mounting block. (This is the same mounting method used with standard UF-1 valves.)

If a leak occurs between the mounting block and the Variety valve after mounting the valve on the mounting block, remove the valve and inspect the mounting block o-rings for damage. Replace any damaged o-rings. Ensure that none of the o-rings are pinched when placing the valve back onto the mounting block.



## Flow Controls

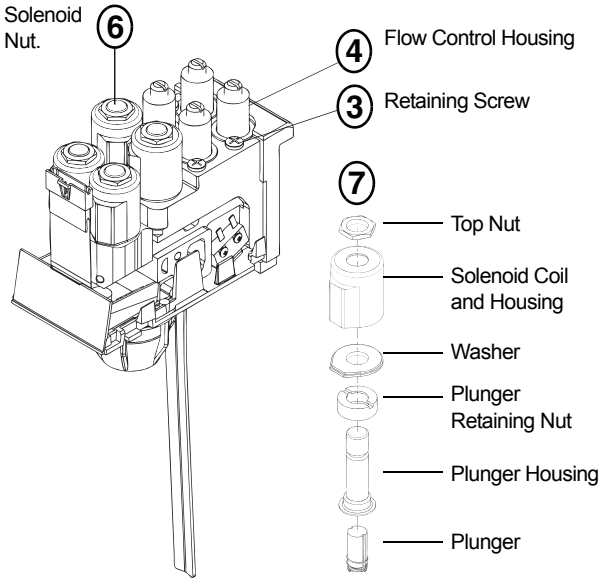
If a flow control does not respond when turning the adjustment screw or if there is difficulty in brixing the valve, remove the flow control's ceramic cylinder and ceramic piston. Remove the piston from the cylinder. Inspect for and remove any debris and clean the piston and cylinder with warm water. Reassemble the piston and cylinder into the valve.



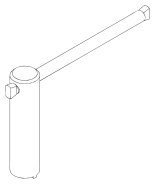

### CHANGE THE SOLENOID OR THE FLOW CONTROL

NOTE: To change the flow control, follow steps 1–5. To change the solenoid, follow steps 1, 2, and 6–8.

1. Depressurize all of the water and syrup lines.
2. Remove the front valve cover. Remove the rear valve cover. Unplug the power supply. If necessary, remove the valve from the unit to make room to work.
3. Remove the two retaining screws holding a particular flow control module on (only one screw is visible in the picture).




4. Remove the flow control housing (top piece).
5. Remove and replace the necessary flow control components.
6. To replace the solenoid, first remove the top nut.



NOTE: You may order a solenoid wrench (P/N 99-0050) to remove the plunger retaining nut.

7. Remove the solenoid coil, the washer, the plunger retaining nut, the plunger housing, and the plunger.
8. Reassemble the solenoid components in the same order and replace the top nut.

NOTE: Prior to reassembly, make sure the solenoid O-ring (in the valve body) is properly seated in the valve.

## Brixing

### BRIX CHECK

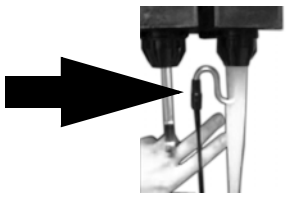
#### Step 1 - Gather Tools

Tools you will need; high yield brix cup and S tube.

#### Step 2 - Attaching S Tube To Multi-flavor Valve

- Remove nozzle and syrup diffuser from valve.
- Slide white end of S Tube over tip of diffuser snuggly.
- Re-attach nozzle and diffuser with S Tube in place.
- Select flavor to brix.

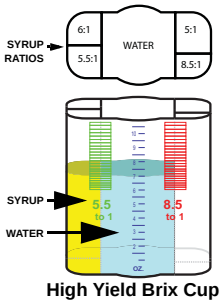
#### Step 3 - Prime S Tube



After nozzle has been re-attached, dispense a small amount of product to fill up the S Tube.

- This is necessary to ensure an accurate reading.

#### Step 4 - Fill Brix Cup

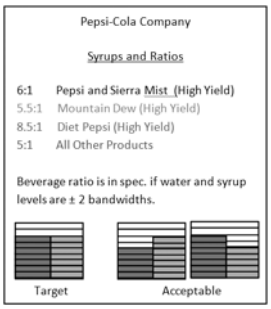



High Yield Brix Cup

- Position the large end of the brix cup under the valve. At the same time insert the free end of the S tube into the proper syrup chamber. See diagram to the right for reference.
- Dispense product until product reaches the grid on the Brix cup.

NOTE: The water should be clear. If the water is not clear, the S-lube has not been attached correctly to the syrup diffuser. Repeat step 2.

#### Step 5 - Read The Brix


Pepsi-Cola Company
Syrups and Ratios
6:1 Pepsi and Sierra Mist (High Yield)
5.5:1 Mountain Dew (High Yield)
8.5:1 Diet Pepsi (High Yield)
5:1 All Other Products
Beverage ratio is in spec. if water and syrup levels are ± 2 bandwidths.
Target
Acceptable

- Remove filled brix cup from dispenser and tap on counter 3 times. Place on flat surface.
- Look a the grid lines. The water and syrup levels should be +/- 2 bars of each other.
- Repeat steps 1-5 for each different product that will be brixed.

NOTE: If Brix ratio is not correct, contact service company.

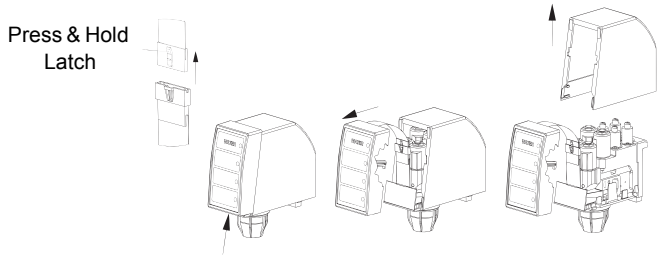
## BRIX ADJUSTMENT

**Important**

Any adjustment or maintenance on the variety valve should be done by a Service Technician.

### Cover Removal

The front cover does not have to be disconnected for removal of the rear cover or for brixing the valve.

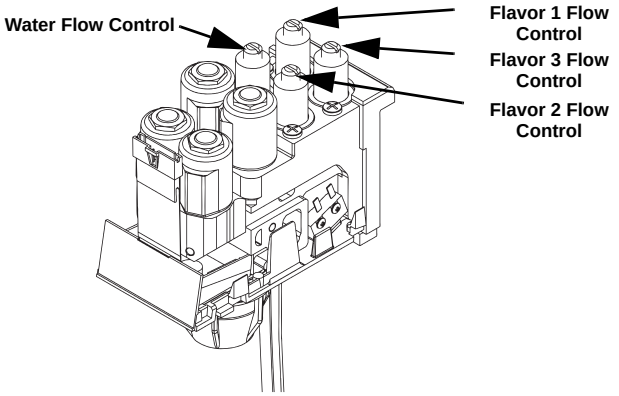



9. Remove the front valve cover by lifting it upward and pulling out. Remove the rear valve cover. Leave the ribbon cable attached to the front valve cover.
10. Place the high yield brix cup under the syrup separator.

### Adjust Water & Syrup

11. Select the flavor to brix;
    - **AUTOFILL & SANITARY LEVER:** Select the flavor to brix and press the brix cup against the lever to dispense.
    - **PORTION CONTROL:** Select the flavor to brix and the LED indicator next to it will illuminate. Press the XL portion button to dispense the drink.
    - **SELF-SERVE:** Push the button of the flavor to brix to dispense.
12. First adjust the water. Turn the adjusting screw on the water flow control counterclockwise to decrease the water flow and clockwise to increase the water flow.

NOTE: After the water flow is adjusted, do not adjust the water again for the other flavors.




13. Turn the adjusting screw on the appropriate syrup flow control counterclockwise to decrease syrup flow or clockwise to increase syrup flow. Dispense a few drinks to check the brix. Readjust as necessary. Repeat for the remaining flavors.
14. Remove the syrup separator from the valve. Put the nozzle and diffuser back on the valve.
15. Replace the rear valve cover and replace the front valve cover.

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# Section 5
# Before Calling for Service

## Checklist

If a problem arises during operation of your variety valve, follow the checklist below before calling service. Routine adjustments and maintenance procedures are not covered by the warranty.

| Problem | Solution |
|---|---|
| The mounting block leaks. | Make sure the O-rings for the syrup and water inlet fittings were not cut or pinched during mounting block installation. If so, replace the O-rings. |
| | If the O-rings have been replaced and the mounting block still leaks, replace the mounting block. |
| A leak occurs between the valve and the mounting block. | Remove the valve. Check the inlet ports for cracks and replace the valve if cracked. |
| | Inspect the O-rings on the mounting block ports and replace if cut or pinched. |
| The front cover LED lights do not display and no product is dispensed. | For self-serve valves, LED lights only display when a flavor is selected. For portion control valves, no LED light displays when water is selected. |
| | Make sure the dispenser is plugged in (ice-drink units). |
| | Make sure the transformer is plugged in (drop-in units). |
| | Make sure the 24VAC connector is plugged in to the valve. |
| | Make sure the other valves on the unit are working. If other valves are not working, check the transformer voltage output and replace if defective. |
| | Check for kinks in the ribbon cable:<br>• If flexing the ribbon cable causes the LED lights to display, replace the front cover.<br>• If flexing the ribbon cable does not cause the LED lights to display, check the pins on the front cover electronics connector for damage. If the pins are damaged, replace the valve electronics. If the pins are not damaged and the LED lights still do not display, replace the front cover. |
| | Check the pins on the front cover electronics connector. If the pins are damaged, replace the valve electronics. If the pins are not damaged, replace the front cover. |
| The front cover LED lights display, but no product is dispensed from the valve. | Make sure any shut-offs on the water and syrup lines are open. |
| | For Autofill and sanitary lever valves, check the lever switch connections and the lever switch. |
| | Check the syrup and incoming water pressures. Water pressure must be set at 40–60 psig. The BIB pressure regulator must be set at 60 psig. |
| The front cover LED lights do not display, but product is dispensed from the valve. | For portion control valves, no LED light displays when water is selected. |
| | Check for kinks in the ribbon cable:<br>• If flexing the ribbon cable causes the LED lights to display, replace the front cover.<br>• If flexing the ribbon cable does not cause the LED lights to display, check the pins on the front cover electronics connector for damage. If the pins are damaged, replace the valve electronics. If the pins are not damaged and the LED lights still do not display, replace the front cover. |
| | Check the pins on the front cover electronics connector. If the pins are damaged, replace the valve electronics. If the pins are not damaged, replace the front cover. |
| The selection LED light remains lit on one flavor when trying to switch flavors. | Replace the front valve cover (see How to Replace the Front Cover). |

| Problem | Solution |
|---|---|
| Only syrup or water is dispensed | Make sure any shut-offs on the water and syrup lines are open. |
| | Check the syrup and incoming water pressures. Water pressure must be set at 40–60 psig. The BIB pressure regulator must be set at 60 psig. |
| | Make sure the solenoids are properly connected to the electronics. |
| | Check the valve electronics for damaged wires or connectors. |
| | Check the solenoid for a damaged plunger. Refer to How to Change the Solenoid or the Flow Control. |
| The Autofill valve immediately shuts off after it is activated. | Check for leaks from the nozzle or valve. If the valve leaks, replace the valve body. |
| | Check the grounding connections and polarity. Refer to Grounding the Dispenser for Autofill Variety Valves. |
| The brix ratio is too low or too high. | Adjust the brix ratio by using the water or syrup flow controls (see Valve Brix). |
| Adjusting the flow control module does not change the brix ratio. | If the valve has been idle with syrup in it for an extended period of time, clean all of the flow controls (see How to Change the Solenoid or the Flow Control). |
| | Remove the flow control, clean it, and then reinstall it (see How to Change the Solenoid or the Flow Control). |
| Low Carbonation on Carbonated drinks | Check if the nozzle color is BLACK. If not, replace with BLACK nozzle. |
| | Check if $CO_2$ tank if empty. Pressure before carbonator should be 75 psig. |
| | Preset $CO_2$ pressure regulator malfunction. Replace |
| | Check water pressure. Pressure before carbonator should be 40-60 psig. |
| The valve is slow to shut off. | Clean the solenoid plunger (see How to Change the Solenoid or the Flow Control). |
| The flow from the nozzle is broken or low. | Remove the diffuser from the nozzle, clean the diffuser, make sure it is not clogged, and replace the diffuser on the nozzle (see Maintenance). |
| | Check the syrup and incoming water pressures. Water pressure must be set at 40–60 psig. The BIB pressure regulator must be set at 60 psig. |
| The valves adjacent to the Variety valve are malfunctioning. | Check the grounding connections and polarity. Refer to Grounding the Dispenser for Autofill Variety Valves. |

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Continuing product improvements may necessitate change of specifications without notice.

**Part Number 020004001 4/12**

**Manitowoc Beverage Systems**
**2100 Future Drive**
**Sellersburg, IN 47172, USA**
**Ph: 812-246-7000 Fax: 812-246-7024**
**Visit us online at: *www.manitowocfsg.com***